



SEQUENCE LISTING

<110> Georgopoulos, Katia  
Morgan, Bruce

<120> AIOLOS GENE

<130> 10287/031001

<140> US 09/019,348

<141> 1998-02-05

<150> US 08/733,622

<151> 1996-10-17

<150> US 60/017,646

<151> 1996-05-14

<150> US 60/005,527

<151> 1995-10-18

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gacgcgaccg	agcgatcccc	gggcctccct	gcgcccggaa	tctcccgcca	gccgcgcggg	300
tccccacggc	agcagcacgt	ggagcggccg	cggagcctga	gcgacagctg	cagcccgcgc	360
ggccccgcggc	gac atg gaa	gat ata caa	ccg act gtg	gag ctg aaa	agc	409
	Met Glu Asp	Ile Gln Pro	Thr Val Glu	Leu Lys Ser		
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acg gag gag	cag cct	ctg ccc	aca gag	agc cca	gac gct	ctg aat	gac	457
Thr Glu Glu	Gln Pro	Leu Pro	Thr Glu	Ser Pro	Asp Ala	Leu Asn	Asp	
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tac agc ttg	ccc aaa	cct cat	gag ata	gaa aac	gtg gac	agt aga	gaa	505
Tyr Ser Leu	Pro Lys	Pro His	Glu Ile	Glu Asn	Val Asp	Ser Arg	Glu	
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gcc cca gcc	aat gaa	gac gaa	gat gca	gga gaa	gat tcg	atg aaa	gtg	553
Ala Pro Ala	Asn Glu	Asp Glu	Asp Ala	Gly Glu	Asp Ser	Met Lys	Val	
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aaa gat gaa	tac agc	gac aga	gat gag	aac att	atg aag	ccg gag	ccc	601
Lys Asp Glu	Tyr Ser	Asp Arg	Asp Glu	Asn Ile	Met Lys	Pro Glu	Pro	
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atg gga gat gca gaa gag agt gaa atg cct tac agc tat gca aga gaa 649  
 Met Gly Asp Ala Glu Glu Ser Glu Met Pro Tyr Ser Tyr Ala Arg Glu  
 80 85 90  
 tac agc gac tat gaa agc att aag ctg gag aga cac gtg ccc tat gac 697  
 Tyr Ser Asp Tyr Glu Ser Ile Lys Leu Glu Arg His Val Pro Tyr Asp  
 95 100 105  
 aac agc aga cca acc agt ggg aag atg aac tgc gac gtg tgc ggg tta 745  
 Asn Ser Arg Pro Thr Ser Gly Lys Met Asn Cys Asp Val Cys Gly Leu  
 110 115 120  
 tcc tgc att agc ttc aac gtc ttg atg gtt cat aag cga agc cat acc 793  
 Ser Cys Ile Ser Phe Asn Val Leu Met Val His Lys Arg Ser His Thr  
 125 130 135 140  
 ggc gaa cgc ccg ttc cag tgt aat cag tgc ggg gca tct ttt act cag 841  
 Gly Glu Arg Pro Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln  
 145 150 155  
 aaa ggt aac ctc ctc cgt cat att aaa ctg cac acg ggg gaa aaa cct 889  
 Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Thr Gly Glu Lys Pro  
 160 165 170  
 ttt aag tgt cac ctc tgc aac tac gca tgc caa agg aga gat gcg ctc 937  
 Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Gln Arg Arg Asp Ala Leu  
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 acg gga cac ctt agg aca cat tct gtg gag aag ccg tac aag tgt gag 985  
 Thr Gly His Leu Arg Thr His Ser Val Glu Lys Pro Tyr Lys Cys Glu  
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 ttc tgc gga aga agc tac aag cag aga agc tcc ctg gag gag cac aag 1033  
 Phe Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys  
 205 210 215 220  
 gaa cgc tgc cga gct ttt ctt cag aac cct gac ctg ggg gac gct gca 1081  
 Glu Arg Cys Arg Ala Phe Leu Gln Asn Pro Asp Leu Gly Asp Ala Ala  
 225 230 235  
 agt gtg gag gca aga cac atc aaa gcc gag atg gga agt gag aga gct 1129  
 Ser Val Glu Ala Arg His Ile Lys Ala Glu Met Gly Ser Glu Arg Ala  
 240 245 250  
 ctc gtc ctg gac aga tta gca agc aat gtg gct aag cga aaa agc tcg 1177  
 Leu Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser  
 255 260 265  
 atg cct cag aaa ttc atc ggt gag aag cgg cac tgc ttc gat gcc aac 1225  
 Met Pro Gln Lys Phe Ile Gly Glu Lys Arg His Cys Phe Asp Ala Asn  
 270 275 280  
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 Tyr Asn Pro Gly Tyr Met Tyr Glu Lys Glu Asn Glu Met Met Gln Thr  
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 cgg atg atg gac caa gcc atc aat aac gcc atc agc tat cta ggg gct 1321  
 Arg Met Met Asp Gln Ala Ile Asn Asn Ala Ile Ser Tyr Leu Gly Ala  
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gaa gcc ttc cgc ccc tta gtc cag act ccg cct gct ccc acc tct gag 1369  
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 Met Val Pro Val Ile Ser Ser Val Tyr Pro Ile Ala Leu Thr Arg Ala  
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gat atg cca atg ggg gcc ccg cag gag atg gaa aag aaa cgg atc ctc 1465  
 Asp Met Pro Met Gly Ala Pro Gln Glu Met Glu Lys Lys Arg Ile Leu  
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ctg cca gag aag atc ttg cct tct gaa cga ggt ctg tcc ccc aat aac 1513  
 Leu Pro Glu Lys Ile Leu Pro Ser Glu Arg Gly Leu Ser Pro Asn Asn  
 365 370 375 380

agt gcc cag gac tcc aca gac acc gac agc aac cac gag gat cgc caa 1561  
 Ser Ala Gln Asp Ser Thr Asp Thr Asp Ser Asn His Glu Asp Arg Gln  
 385 390 395

cat ctc tac cag caa agc cac gtg gtc ctc ccc cag gcc cgc aat ggg 1609  
 His Leu Tyr Gln Gln Ser His Val Val Leu Pro Gln Ala Arg Asn Gly  
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atg cct ctt ctg aag gag gtc cct cgc tct ttt gaa ctc ctc aag ccc 1657  
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 415 420 425

cct ccc atc tgc ctg agg gac tcc atc aaa gtg atc aac aaa gaa ggg 1705  
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gag gtg atg gat gtg ttt cga tgt gac cac tgc cac gtc ctc ttc cta 1753  
 Glu Val Met Asp Val Phe Arg Cys Asp His Cys His Val Leu Phe Leu  
 445 450 455 460

gat tat gtg atg ttc acc atc cac atg ggg tgc cat ggt ttc cgt gat 1801  
 Asp Tyr Val Met Phe Thr Ile His Met Gly Cys His Gly Phe Arg Asp  
 465 470 475

ccc ttt gag tgt aac atg tgt ggc tat cga agc cac gat cgc tat gag 1849  
 Pro Phe Glu Cys Asn Met Cys Gly Tyr Arg Ser His Asp Arg Tyr Glu  
 480 485 490

ttc tcc tct cac atc gcc aga gga gag cac aga gcc atg ttg aag 1894  
 Phe Ser Ser His Ile Ala Arg Gly Glu His Arg Ala Met Leu Lys  
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 35 40 45  
 Glu Asp Glu Asp Ala Gly Glu Asp Ser Met Lys Val Lys Asp Glu Tyr  
 50 55 60  
 Ser Asp Arg Asp Glu Asn Ile Met Lys Pro Glu Pro Met Gly Asp Ala  
 65 70 75 80  
 Glu Glu Ser Glu Met Pro Tyr Ser Tyr Ala Arg Glu Tyr Ser Asp Tyr  
 85 90 95  
 Glu Ser Ile Lys Leu Glu Arg His Val Pro Tyr Asp Asn Ser Arg Pro  
 100 105 110  
 Thr Ser Gly Lys Met Asn Cys Asp Val Cys Gly Leu Ser Cys Ile Ser  
 115 120 125  
 Phe Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro  
 130 135 140  
 Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
 145 150 155 160  
 Leu Arg His Ile Lys Leu His Thr Gly Glu Lys Pro Phe Lys Cys His  
 165 170 175  
 Leu Cys Asn Tyr Ala Cys Gln Arg Arg Asp Ala Leu Thr Gly His Leu  
 180 185 190  
 Arg Thr His Ser Val Glu Lys Pro Tyr Lys Cys Glu Phe Cys Gly Arg  
 195 200 205  
 Ser Tyr Lys Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys Arg  
 210 215 220  
 Ala Phe Leu Gln Asn Pro Asp Leu Gly Asp Ala Ala Ser Val Glu Ala  
 225 230 235 240  
 Arg His Ile Lys Ala Glu Met Gly Ser Glu Arg Ala Leu Val Leu Asp  
 245 250 255  
 Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met Pro Gln Lys  
 260 265 270  
 Phe Ile Gly Glu Lys Arg His Cys Phe Asp Ala Asn Tyr Asn Pro Gly  
 275 280 285  
 Tyr Met Tyr Glu Lys Glu Asn Glu Met Met Gln Thr Arg Met Met Asp  
 290 295 300  
 Gln Ala Ile Asn Asn Ala Ile Ser Tyr Leu Gly Ala Glu Ala Phe Arg  
 305 310 315 320  
 Pro Leu Val Gln Thr Pro Pro Ala Pro Thr Ser Glu Met Val Pro Val  
 325 330 335  
 Ile Ser Ser Val Tyr Pro Ile Ala Leu Thr Arg Ala Asp Met Pro Met  
 340 345 350  
 Gly Ala Pro Gln Glu Met Glu Lys Arg Ile Leu Leu Pro Glu Lys  
 355 360 365  
 Ile Leu Pro Ser Glu Arg Gly Leu Ser Pro Asn Asn Ser Ala Gln Asp  
 370 375 380  
 Ser Thr Asp Thr Asp Ser Asn His Glu Asp Arg Gln His Leu Tyr Gln  
 385 390 395 400  
 Gln Ser His Val Val Leu Pro Gln Ala Arg Asn Gly Met Pro Leu Leu  
 405 410 415  
 Lys Glu Val Pro Arg Ser Phe Glu Leu Leu Lys Pro Pro Pro Ile Cys  
 420 425 430  
 Leu Arg Asp Ser Ile Lys Val Ile Asn Lys Glu Gly Glu Val Met Asp  
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 Val Phe Arg Cys Asp His Cys His Val Leu Phe Leu Asp Tyr Val Met  
 450 455 460  
 Phe Thr Ile His Met Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys  
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gag cct gaa atc cct tac agc tat tca aga gaa tat aat gaa tat gaa 96  
 Glu Pro Glu Ile Pro Tyr Ser Tyr Ser Arg Glu Tyr Asn Glu Tyr Glu  
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aac att aag ttg gag aga cat gtt gtc tca ttc gat agt agc agg cca 144  
 Asn Ile Lys Leu Glu Arg His Val Val Ser Phe Asp Ser Ser Arg Pro  
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acc agt gga aag atg aac tgc gat gtg tgt gga tta tcc tgc atc agc 192  
 Thr Ser Gly Lys Met Asn Cys Asp Val Cys Gly Leu Ser Cys Ile Ser  
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ttc aat gtc tta atg gtt cat aag cga agc cat act ggt gaa cgc cca 240  
 Phe Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro  
 65 70 75 80

ttc cag tgt aat cag tgt ggg gca tct ttt act cag aaa ggt aac ctc 288  
 Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
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 Leu Arg His Ile Lys Leu His Thr Gly Glu Lys Pro Phe Lys Cys His  
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 ctc tgc aac tat gca tgc caa aga aga gat gcg ctc acg ggg cat ctt 384  
 Leu Cys Asn Tyr Ala Cys Gln Arg Arg Asp Ala Leu Thr Gly His Leu  
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 Arg Thr His Ser Val Glu Lys Pro Tyr Lys Cys Glu Phe Cys Gly Arg  
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 agt tac aag cag aga agt tcc ctt gag gag cac aag gag cgc tgc cgt 480  
 Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys Arg  
 145 150 155 160  
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 Thr Phe Leu Gln Ser Thr Asp Pro Gly Asp Thr Ala Ser Ala Glu Ala  
 165 170 175  
 aga cac atc aaa gca gag atg gga agt gaa aga gct ctc gta ctg gac 576  
 Arg His Ile Lys Ala Glu Met Gly Ser Glu Arg Ala Leu Val Leu Asp  
 180 185 190  
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 35 40 45  
 Thr Ser Gly Lys Met Asn Cys Asp Val Cys Gly Leu Ser Cys Ile Ser  
 50 55 60  
 Phe Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro  
 65 70 75 80  
 Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
 85 90 95  
 Leu Arg His Ile Lys Leu His Thr Gly Glu Lys Pro Phe Lys Cys His  
 100 105 110  
 Leu Cys Asn Tyr Ala Cys Gln Arg Arg Asp Ala Leu Thr Gly His Leu  
 115 120 125  
 Arg Thr His Ser Val Glu Lys Pro Tyr Lys Cys Glu Phe Cys Gly Arg  
 130 135 140  
 Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys Arg  
 145 150 155 160

Thr	Phe	Leu	Gln	Ser	Thr	Asp	Pro	Gly	Asp	Thr	Ala	Ser	Ala	Glu	Ala
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Arg	His	Ile	Lys	Ala	Glu	Met	Gly	Ser	Glu	Arg	Ala	Leu	Val	Leu	Asp
			180					185					190		
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gag ggt caa gac atg tcc caa gtt tca gga aag gag agc ccc cca gtc						282
Glu Gly Gln Asp Met Ser Gln Val Ser Gly Lys Glu Ser Pro Pro Val						
5 10 15 20						
agt gac act cca gat gaa ggg gat gag ccc atg cct gtc cct gag gac						330
Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro Val Pro Glu Asp						
25 30 35						
ctg tcc act acc tct gga gca cag cag aac tcc aag agt gat cga ggc						378
Leu Ser Thr Ser Gly Ala Gln Gln Asn Ser Lys Ser Asp Arg Gly						
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atg ggt gaa cgg cct ttc cag tgc aac cag tct ggg gcc tcc ttt acc						426
Met Gly Glu Arg Pro Phe Gln Cys Asn Gln Ser Gly Ala Ser Phe Thr						
55 60 65						
cag aaa ggc aac ctc ctg cgg cac atc aag ctg cac tcg ggt gag aag						474
Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu Lys						
70 75 80						
ccc ttc aaa tgc cat ctt tgc aac tat gcc tgc cgc cgg agg gac gcc						522
Pro Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg Arg Arg Asp Ala						
85 90 95 100						
ctc acc ggc cac ctg agg acg cac tcc gtt ggt aag cct cac aaa tgt						570
Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys Pro His Lys Cys						
105 110 115						
gga tat tgt ggc cgg agc tat aaa cag cga agc tct tta gag gag cat						618
Gly Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His						
120 125 130						
aaa gag cga tgc cac aac tac ttg gaa agc atg ggc ctt ccg ggc gtg						666
Lys Glu Arg Cys His Asn Tyr Leu Glu Ser Met Gly Leu Pro Gly Val						
135 140 145						
tgc cca gtc att aag gaa gaa act aac cac aac gag atg gca gaa gac						714
Cys Pro Val Ile Lys Glu Glu Thr Asn His Asn Glu Met Ala Glu Asp						
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ctg tgc aag ata gga gca gag agg tcc ctt gtc ctg gac agg ctg gca						762
Leu Cys Lys Ile Gly Ala Glu Arg Ser Leu Val Leu Asp Arg Leu Ala						
165 170 175 180						
agc aat gtc gcc aaa cgt aag agc tct atg cct cag aaa ttt ctt gga						810
Ser Asn Val Ala Lys Arg Lys Ser Ser Met Pro Gln Lys Phe Leu Gly						
185 190 195						



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Asp Lys Cys Leu Ser Asp Met Pro Tyr Asp Ser Ala Asn Tyr Glu Lys  
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gag gat atg atg aca tcc cac gtg atg gac cag gcc atc aac aat gcc 906  
Glu Asp Met Met Thr Ser His Val Met Asp Gln Ala Ile Asn Asn Ala  
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atc aac tac ctg ggg gct gag tcc ctg cgc cca ttg gtg cag aca ccc 954  
Ile Asn Tyr Leu Gly Ala Glu Ser Leu Arg Pro Leu Val Gln Thr Pro  
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ccc ggt agc tcc gag gtg gtg cca gtc atc agc tcc atg tac cag ctg 1002  
Pro Gly Ser Ser Glu Val Val Pro Val Ile Ser Ser Met Tyr Gln Leu  
245 250 255 260  
cac aag ccc ccc tca gat ggc ccc cca cgg tcc aac cat tca gca cag 1050  
His Lys Pro Pro Ser Asp Gly Pro Pro Arg Ser Asn His Ser Ala Gln  
265 270 275  
gac gcc gtg gat aac ttg ctg ctg ctg tcc aag gcc aag tct gtg tca 1098  
Asp Ala Val Asp Asn Leu Leu Leu Leu Ser Lys Ala Lys Ser Val Ser  
280 285 290  
tcg gag cga gag gcc tcc ccg agc aac agc tgc caa gac tcc aca gat 1146  
Ser Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Gln Asp Ser Thr Asp  
295 300 305  
aca gag agc aac gcg gag gaa cag cgc agc ggc ctt atc tac cta acc 1194  
Thr Glu Ser Asn Ala Glu Glu Gln Arg Ser Gly Leu Ile Tyr Leu Thr  
310 315 320  
aac cac atc aac ccg cat gca cgc aat ggg ctg gct ctc aag gag gag 1242  
Asn His Ile Asn Pro His Ala Arg Asn Gly Leu Ala Leu Lys Glu Glu  
325 330 335 340  
cag cgc gcc tac gag gtg ctg agg gcg gcc tca gag aac tcg cag gat 1290  
Gln Arg Ala Tyr Glu Val Leu Arg Ala Ala Ser Glu Asn Ser Gln Asp  
345 350 355  
gcc ttc cgt gtg gtc agc acg agt ggc gag cag ctg aag gtg tac aag 1338  
Ala Phe Arg Val Val Ser Thr Ser Gly Glu Gln Leu Lys Val Tyr Lys  
360 365 370  
tgc gaa cac tgc cgc gtg ctc ttc ctg gat cac gtc atg tat acc att 1386  
Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile  
375 380 385  
cac atg ggc tgc cat ggc tgc cat ggc ttt cgg gat ccc ttt gag tgt 1434  
His Met Gly Cys His Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys  
390 395 400  
aac atg tgt ggt tat cac agc cag gac agg tac gag ttc tca tcc cat 1482  
Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr Glu Phe Ser Ser His  
405 410 415 420  
atc acg cgg ggg gag cat cgt tac cac ctg agc taaacccagc caggccccac 1535  
Ile Thr Arg Gly Glu His Arg Tyr His Leu Ser  
425 430  
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gcgttggaag ataagttttt aatgttagtg acaggattgc attgcatcag caacattcac 1715  
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<220>  
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 gaa atg aat ggg gaa gaa tgt gcg gag gat tta cga atg ctt gat gcc 96  
 Glu Met Asn Gly Glu Glu Cys Ala Glu Asp Leu Arg Met Leu Asp Ala  
 20 25 30  
 tcg gga gag aaa atg aat ggc tcc cac agg gac caa ggc agc tcg gct 144  
 Ser Gly Glu Lys Met Asn Gly Ser His Arg Asp Gln Gly Ser Ser Ala  
 35 40 45  
 ttg tcg gga gtt gga ggc att cga ctt cct aac gga aaa cta aag tgt 192  
 Leu Ser Gly Val Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu Lys Cys  
 50 55 60  
 gat atc tgt ggg atc att tgc atc ggg ccc aat gtg ctc atg gtt cac 240  
 Asp Ile Cys Gly Ile Ile Cys Ile Gly Pro Asn Val Leu Met Val His  
 65 70 75 80  
 aaa aga agc cac act gga gaa cgg ccc ttc cag tgc aat cag tgc ggg 288  
 Lys Arg Ser His Thr Gly Glu Arg Pro Phe Gln Cys Asn Gln Cys Gly  
 85 90 95  
 gcc tca ttc acc cag aag ggc aac ctg ctc cgg cac atc aag ctg cat 336  
 Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His  
 100 105 110  
 tcc ggg gag aag ccc ttc aaa tgc cac ctc tgc aac tac gcc tgc cgc 384  
 Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg  
 115 120 125  
 cgg agg gac gcc ctc act ggc cac ctg agg acg cac tcc gtt ggt aaa 432  
 Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys  
 130 135 140  
 cct cac aaa tgt gga tat tgt ggc cga agc tat aaa cag cga acg tct 480  
 Pro His Lys Cys Gly Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Thr Ser  
 145 150 155 160  
 tta gag gaa cat aaa gag cgc tgc cac aac tac ttg gaa agc atg ggc 528  
 Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Glu Ser Met Gly  
 165 170 175  
 ctt ccg ggc aca ctg tac cca gtc att aaa gaa gaa act aag cac agt 576  
 Leu Pro Gly Thr Leu Tyr Pro Val Ile Lys Glu Glu Thr Lys His Ser  
 180 185 190

gaa atg gca gaa gac ctg tgc aag ata gga tca gag aga tct ctc gtg 624  
 Glu Met Ala Glu Asp Leu Cys Lys Ile Gly Ser Glu Arg Ser Leu Val  
 195 200 205  
 ctg gac aga cta gca agt aat gtc gcc aaa cgt aag agc tct atg cct 672  
 Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met Pro  
 210 215 220  
 cag aaa ttt ctt ggg gac aag ggc ctg tcc gac acg ccc tac gac agt 720  
 Gln Lys Phe Leu Gly Asp Lys Gly Leu Ser Asp Thr Pro Tyr Asp Ser  
 225 230 235 240  
 gcc acg tac gag aag gag aac gaa atg atg aag tcc cac gtg atg gac 768  
 Ala Thr Tyr Glu Lys Glu Asn Glu Met Met Lys Ser His Val Met Asp  
 245 250 255  
 caa gcc atc aac aac gcc atc aac tac ctg ggg gcc gag tcc ctg cgc 816  
 Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu Arg  
 260 265 270  
 ccg ctg gtg cag acg ccc ccg ggc ggt tcc gag gtg gtc ccg gtc atc 864  
 Pro Leu Val Gln Thr Pro Pro Gly Gly Ser Glu Val Val Pro Val Ile  
 275 280 285  
 agc ccg atg tac cag ctg cac agg cgc tcc gag ggc acc ccg cgc tcc 912  
 Ser Pro Met Tyr Gln Leu His Arg Arg Ser Glu Gly Thr Pro Arg Ser  
 290 295 300  
 aac cac tcc gcc cag gac agc gcc gtg gag tac ctg ctg ctg ctc tcc 960  
 Asn His Ser Ala Gln Asp Ser Ala Val Glu Tyr Leu Leu Leu Leu Ser  
 305 310 315 320  
 aag gcc aag ttg gtg ccc tcc gag cgc gag gcg tcc ccg agc aac agc 1008  
 Lys Ala Lys Leu Val Pro Ser Glu Arg Glu Ala Ser Pro Ser Asn Ser  
 325 330 335  
 tgc caa gac tcc acg gac acc gag agc aac aac gag gag cag cgc agc 1056  
 Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Asn Glu Glu Gln Arg Ser  
 340 345 350  
 ggt ctt atc tac ctg acc aac cac atc gcc cga cgc gcg caa cgc gtg 1104  
 Gly Leu Ile Tyr Leu Thr Asn His Ile Ala Arg Arg Ala Gln Arg Val  
 355 360 365  
 tcc ctc aag gag gag cac cgc gcc tac gac ctg ctg cgc gcc gcc tcc 1152  
 Ser Leu Lys Glu Glu His Arg Ala Tyr Asp Leu Arg Ala Ala Ser  
 370 375 380  
 gag aac tcc cag gac gcg ctc cgc gtg gtc agc acc agc ggg gag cag 1200  
 Glu Asn Ser Gln Asp Ala Leu Arg Val Val Ser Thr Ser Gly Glu Gln  
 385 390 395 400  
 atg aag gtg tac aag tgc gaa cac tgc cgg gtg ctc ttc ctg gat cac 1248  
 Met Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His  
 405 410 415  
 gtc atg tac acc atc cac atg ggc tgc cac ggc ttc cgt gat cct ttt 1296  
 Val Met Tyr Thr Ile His Met Gly Cys His Gly Phe Arg Asp Pro Phe  
 420 425 430

gag tgc aac atg tgc ggc tac cac agc cag gac cgg tac gag ttc tcg 1344  
 Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr Glu Phe Ser  
 435 440 445

tcg cac ata acg cga ggg gag cac cgc ttc cac atg agc taa 1386  
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agc ccc cca gtc agt gac act cca gat gaa ggg gat gag ccc atg cct 96  
 Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
 20 25 30

gtc cct gag gac ctg tcc act acc tct gga gca cag cag aac tcc aag 144  
 Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
 35 40 45

agt gat cga ggc atg gcc agt aat gtt aaa gta gag act cag agt gat 192  
 Ser Asp Arg Gly Met Ala Ser Asn Val Lys Val Glu Thr Gln Ser Asp  
 50 55 60

gaa gag aat ggg cgt gcc tgt gaa atg aat ggg gaa gaa tgt gca gag 240  
 Glu Glu Asn Gly Arg Ala Cys Glu Met Asn Gly Glu Glu Cys Ala Glu  
 65 70 75 80

gat tta cga atg ctt gat gcc tcg gga gag aaa atg aat ggc tcc cac 288  
 Asp Leu Arg Met Leu Asp Ala Ser Gly Glu Lys Met Asn Gly Ser His  
 85 90 95

agg gac caa ggc agc tcg gct ttg tca gga gtt gga ggc att cga ctt 336  
 Arg Asp Gln Gly Ser Ser Ala Leu Ser Gly Val Gly Gly Ile Arg Leu  
 100 105 110

cct aac gga aaa cta aag tgt gat atc tgt ggg atc gtt tgc atc ggg 384  
 Pro Asn Gly Lys Leu Lys Cys Asp Ile Cys Gly Ile Val Cys Ile Gly  
 115 120 125

ccc aat gtg ctc atg gtt cac aaa aga agt cat act ggt gaa cgg cct 432  
 Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro  
 130 135 140

ttc cag tgc aac cag tct ggg gcc tcc ttt acc cag aaa ggc aac ctc 480  
 Phe Gln Cys Asn Gln Ser Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
 145 150 155 160

ctg cgg cac atc aag ctg cac tcg ggt gag aag ccc ttc aaa tgc cat 528  
 Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys His  
 165 170 175

ctt tgc aac tat gcc tgc cgc egg agg gac gcc ctc acc ggc cac ctg 576  
 Leu Cys Asn Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu  
 180 185 190

agg acg cac tcc gga gac aag tgc ctg tca gac atg ccc tat gac agt 624  
 Arg Thr His Ser Gly Asp Lys Cys Leu Ser Asp Met Pro Tyr Asp Ser  
 195 200 205

gcc aac tat gag aag gag gat atg atg aca tcc cac gtg atg gac cag 672  
 Ala Asn Tyr Glu Lys Glu Asp Met Met Thr Ser His Val Met Asp Gln  
 210 215 220

gcc atc aac aat gcc atc aac tac ctg ggg gct gag tcc ctg cgc cca 720  
 Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu Arg Pro  
 225 230 235 240

ttg gtg cag aca ccc ccc ggt agc tcc gag gtg gtg cca gtc atc agc 768  
 Leu Val Gln Thr Pro Pro Gly Ser Ser Glu Val Val Pro Val Ile Ser  
 245 250 255

tcc atg tac cag ctg cac aag ccc ccc tca gat ggc ccc cca cgg tcc 816  
 Ser Met Tyr Gln Leu His Lys Pro Pro Ser Asp Gly Pro Pro Arg Ser  
 260 265 270

aac cat tca gca cag gac gcc gtg gat aac ttg ctg ctg ctg tcc aag 864  
 Asn His Ser Ala Gln Asp Ala Val Asp Asn Leu Leu Leu Leu Ser Lys  
 275 280 285

gcc aag tct gtg tca tgc gag cga gag gcc tcc ccg agc aac agc tgc 912  
 Ala Lys Ser Val Ser Ser Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys  
 290 295 300

caa gac tcc aca gat aca gag agc aac gcg gag gaa cag cgc agc ggc 960  
 Gln Asp Ser Thr Asp Thr Glu Ser Asn Ala Glu Glu Gln Arg Ser Gly  
 305 310 315 320

ctt atc tac cta acc aac cac atc aac ccg cat gca cgc aat ggg ctg 1008  
 Leu Ile Tyr Leu Thr Asn His Ile Asn Pro His Ala Arg Asn Gly Leu  
 325 330 335

gct ctc aag gag gag cag cgc gcc tac gag gtg ctg agg gcg gcc tca 1056  
 Ala Leu Lys Glu Glu Gln Arg Ala Tyr Glu Val Leu Arg Ala Ala Ser  
 340 345 350

gag aac tgc cag gat gcc ttc cgt gtg gtc agc acg agt ggc gag cag 1104  
 Glu Asn Ser Gln Asp Ala Phe Arg Val Val Ser Thr Ser Gly Glu Gln  
 355 360 365

ctg aag gtg tac aag tgc gaa cac tgc cgc gtg ctc ttc ctg gat cac 1152  
 Leu Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His  
 370 375 380

gtc atg tat acc att cac atg ggc tgc cat ggc tgc cat ggc ttt cgg 1200  
 Val Met Tyr Thr Ile His Met Gly Cys His Gly Cys His Gly Phe Arg  
 385 390 395 400

gat ccc ttt gag tgt aac atg tgt ggt tat cac agc cag gac agg tac 1248  
 Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr  
 405 410 415

gag ttc tca tcc cat atc acg cgg ggg gag cat cgt tac cac ctg agc	1296
Glu Phe Ser Ser His Ile Thr Arg Gly Glu His Arg Tyr His Leu Ser	
420 425 430	

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gaagaggaag aggaagagga atctgcgct catccagga tcagggctct tcccaagtgg	120
ccactcagag gggactcaga gcaagcttag atttgtgtgg cagagagaga cagctctcgt	180
ttggccttgg ggaggcacaa gtctgttgat aacctgaaga ca atg gat gtc gat	234
Met Asp Val Asp	
1	

gag ggt caa gac atg tcc caa gtt tca gga aag gag agc ccc cca gtc	282
Glu Gly Gln Asp Met Ser Gln Val Ser Gly Lys Glu Ser Pro Pro Val	
5 10 15 20	

agt gac act cca gat gaa ggg gat gag ccc atg cct gtc cct gag gac	330
Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro Val Pro Glu Asp	
25 30 35	

ctg tcc act acc tct gga gca cag cag aac tcc aag agt gat cga ggc	378
Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys Ser Asp Arg Gly	
40 45 50	

atg gcc agt aat gtt aaa gta gag act cag agt gat gaa gag aat ggg	426
Met Ala Ser Asn Val Lys Val Glu Thr Gln Ser Asp Glu Glu Asn Gly	
55 60 65	

cgt gcc tgt gaa atg aat ggg gaa gaa tgt gca gag gat tta cga atg	474
Arg Ala Cys Glu Met Asn Gly Glu Glu Cys Ala Glu Asp Leu Arg Met	
70 75 80	

ctt gat gcc tcg gga gag aaa atg aat ggc tcc cac agg gac caa ggc	522
Leu Asp Ala Ser Gly Glu Lys Met Asn Gly Ser His Arg Asp Gln Gly	
85 90 95 100	

agc tcg gct ttg tca gga gtt gga ggc att cga ctt cct aac gga aaa	570
Ser Ser Ala Leu Ser Gly Val Gly Gly Ile Arg Leu Pro Asn Gly Lys	
105 110 115	

cta aag tgt gat atc tgt ggg atc gtt tgc atc ggg ccc aat gtg ctc	618
Leu Lys Cys Asp Ile Cys Gly Ile Val Cys Ile Gly Pro Asn Val Leu	
120 125 130	

atg gtt cac aaa aga agt cat act ggt gaa cgg cct ttc cag tgc aac	666
Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro Phe Gln Cys Asn	
135 140 145	

cag tct ggg gcc tcc ttt acc cag aaa ggc aac ctc ctg cgg cac atc	714
Gln Ser Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile	
150 155 160	

aag ctg cac tcg ggt gag aag ccc ttc aaa tgc cat ctt tgc aac tat 762  
Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn Tyr  
165 170 175 180  
gcc tgc cgc cgg agg gac gcc ctc acc ggc cac ctg agg acg cac tcc 810  
Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser  
185 190 195  
gtt ggt aag cct cac aaa tgt gga tat tgt ggc cgg agc tat aaa cag 858  
Val Gly Lys Pro His Lys Cys Gly Tyr Cys Gly Arg Ser Tyr Lys Gln  
200 205 210  
cga agc tct tta gag gag cat aaa gag cga tgc cac aac tac ttg gaa 906  
Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Glu  
215 220 225  
agc atg ggc ctt ccg ggc gtg tgc cca gtc att aag gaa gaa act aac 954  
Ser Met Gly Leu Pro Gly Val Cys Pro Val Ile Lys Glu Glu Thr Asn  
230 235 240  
cac aac gag atg gca gaa gac ctg tgc aag ata gga gca gag agg tcc 1002  
His Asn Glu Met Ala Glu Asp Leu Cys Lys Ile Gly Ala Glu Arg Ser  
245 250 255 260  
ctt gtc ctg gac agg ctg gca agc aat gtc gcc aaa cgt aag agc tct 1050  
Leu Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser  
265 270 275  
atg cct cag aaa ttt ctt gga gac aag tgc ctg tca gac atg ccc tat 1098  
Met Pro Gln Lys Phe Leu Gly Asp Lys Cys Leu Ser Asp Met Pro Tyr  
280 285 290  
gac agt gcc aac tat gag aag gag gat atg atg aca tcc cac gtg atg 1146  
Asp Ser Ala Asn Tyr Glu Lys Glu Asp Met Met Thr Ser His Val Met  
295 300 305  
gac cag gcc atc aac aat gcc atc aac tac ctg ggg gct gag tcc ctg 1194  
Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu  
310 315 320  
cgc cca ttg gtg cag aca ccc ccc ggt agc tcc gag gtg gtg cca gtc 1242  
Arg Pro Leu Val Gln Thr Pro Pro Gly Ser Ser Glu Val Val Pro Val  
325 330 335 340  
atc agc tcc atg tac cag ctg cac aag ccc ccc tca gat ggc ccc cca 1290  
Ile Ser Ser Met Tyr Gln Leu His Lys Pro Pro Ser Asp Gly Pro Pro  
345 350 355  
cgg tcc aac cat tca gca cag gac gcc gtg gat aac ttg ctg ctg ctg 1338  
Arg Ser Asn His Ser Ala Gln Asp Ala Val Asp Asn Leu Leu Leu Leu  
360 365 370  
tcc aag gcc aag tct gtg tca tgc gag cga gag gcc tcc ccg agc aac 1386  
Ser Lys Ala Lys Ser Val Ser Ser Glu Arg Glu Ala Ser Pro Ser Asn  
375 380 385  
agc tgc caa gac tcc aca gat aca gag agc aac gcg gag gaa cag cgc 1434  
Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Ala Glu Glu Gln Arg  
390 395 400

agc ggc ctt atc tac cta acc aac cac atc aac ccg cat gca cgc aat 1482  
 Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Asn Pro His Ala Arg Asn  
 405 410 415 420

ggg ctg gct ctc aag gag gag cag cgc gcc tac gag gtg ctg agg gcg 1530  
 Gly Leu Ala Leu Lys Glu Glu Gln Arg Ala Tyr Glu Val Leu Arg Ala  
 425 430 435

gcc tca gag aac tcg cag gat gcc ttc cgt gtg gtc agc acg agt ggc 1578  
 Ala Ser Glu Asn Ser Gln Asp Ala Phe Arg Val Val Ser Thr Ser Gly  
 440 445 450

gag cag ctg aag gtg tac aag tgc gaa cac tgc cgc gtg ctc ttc ctg 1626  
 Glu Gln Leu Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu  
 455 460 465

gat cac gtc atg tat acc att cac atg ggc tgc cat ggc tgc cat ggc 1674  
 Asp His Val Met Tyr Thr Ile His Met Gly Cys His Gly Cys His Gly  
 470 475 480

ttt cgg gat ccc ttt gag tgt aac atg tgt ggt tat cac agc cag gac 1722  
 Phe Arg Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp  
 485 490 495 500

agg tac gag ttc tca tcc cat atc acg cgg ggg gag cat cgt tac cac 1770  
 Arg Tyr Glu Phe Ser Ser His Ile Thr Arg Gly Glu His Arg Tyr His  
 505 510 515

ctg agc taaaccacgc caggccccac tgaagcaca agatagctgg ttatgcctcc 1826  
 Leu Ser

ttccccgcag ctggacccac agcggacaat gtgggagtggt atttgcaggc agcatttggt 1886  
 cttttatggt ggttggttgg cgtttcattt gcgttggaag ataagttttt aatgtagtg 1946  
 acaggattgc attgcatcag caacattcac aacatccatc cttctagcca gttttgttca 2006  
 ctggtagctg aggtttcccg gatatgtggc ttcctaacac tct 2049

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agc ccc cca gtc agt gac act cca gat gaa ggg gat gag ccc atg cct 96  
 Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
 20 25 30

gtc cct gag gac ctg tcc act acc tct gga gca cag cag aac tcc aag 144  
 Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
 35 40 45

agt gat cga ggc atg ggt gaa cgg cct ttc cag tgc aac cag tct ggg 192  
 Ser Asp Arg Gly Met Gly Glu Arg Pro Phe Gln Cys Asn Gln Ser Gly  
 50 55 60



gcc tcc ttt acc cag aaa ggc aac ctc ctg cgg cac atc aag ctg cac 240  
Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His  
65 70 75 80

tgc ggt gag aag ccc ttc aaa tgc cat ctt tgc aac tat gcc tgc cgc 288  
Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg  
85 90 95

cgg agg gac gcc ctc acc ggc cac ctg agg acg cac tcc gtc att aag 336  
Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Ile Lys  
100 105 110

gaa gaa act aac cac aac gag atg gca gaa gac ctg tgc aag ata gga 384  
Glu Glu Thr Asn His Asn Glu Met Ala Glu Asp Leu Cys Lys Ile Gly  
115 120 125

gca gag agg tcc ctt gtc ctg gac agg ctg gca agc aat gtc gcc aaa 432  
Ala Glu Arg Ser Leu Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys  
130 135 140

cgt aag agc tct atg cct cag aaa ttt ctt gga gac aag tgc ctg tca 480  
Arg Lys Ser Ser Met Pro Gln Lys Phe Leu Gly Asp Lys Cys Leu Ser  
145 150 155 160

gac atg ccc tat gac agt gcc aac tat gag aag gag gat atg atg aca 528  
Asp Met Pro Tyr Asp Ser Ala Asn Tyr Glu Lys Glu Asp Met Met Thr  
165 170 175

tcc cac gtg atg gac cag gcc atc aac aat gcc atc aac tac ctg ggg 576  
Ser His Val Met Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly  
180 185 190

gct gag tcc ctg cgc cca ttg gtg cag aca ccc ccc ggt agc tcc gag 624  
Ala Glu Ser Leu Arg Pro Leu Val Gln Thr Pro Pro Gly Ser Ser Glu  
195 200 205

gtg gtg cca gtc atc agc tcc atg tac cag ctg cac aag ccc ccc tca 672  
Val Val Pro Val Ile Ser Ser Met Tyr Gln Leu His Lys Pro Pro Ser  
210 215 220

gat ggc ccc cca cgg tcc aac cat tca gca cag gac gcc gtg gat aac 720  
Asp Gly Pro Pro Arg Ser Asn His Ser Ala Gln Asp Ala Val Asp Asn  
225 230 235 240

ttg ctg ctg ctg tcc aag gcc aag tct gtg tca tgc gag cga gag gcc 768  
Leu Leu Leu Leu Ser Lys Ala Lys Ser Val Ser Ser Glu Arg Glu Ala  
245 250 255

tcc ccg agc aac agc tgc caa gac tcc aca gat aca gag agc aac gcg 816  
Ser Pro Ser Asn Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Ala  
260 265 270

gag gaa cag cgc agc ggc ctt atc tac cta acc aac cac atc aac ccg 864  
Glu Glu Gln Arg Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Asn Pro  
275 280 285

cat gca cgc aat ggg ctg gct ctc aag gag gag cag cgc gcc tac gag 912  
His Ala Arg Asn Gly Leu Ala Leu Lys Glu Glu Gln Arg Ala Tyr Glu  
290 295 300

gtg ctg agg gcg gcc tca gag aac tcg cag gat gcc ttc cgt gtg gtc 960  
Val Leu Arg Ala Ala Ser Glu Asn Ser Gln Asp Ala Phe Arg Val Val  
305 310 315 320

agc acg agt ggc gag cag ctg aag gtg tac aag tgc gaa cac tgc cgc 1008  
Ser Thr Ser Gly Glu Gln Leu Lys Val Tyr Lys Cys Glu His Cys Arg  
325 330 335

gtg ctc ttc ctg gat cac gtc atg tat acc att cac atg ggc tgc cat 1056  
Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His  
340 345 350

ggc tgc cat ggc ttt cgg gat ccc ttt gag tgt aac atg tgt ggt tat 1104  
Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr  
355 360 365

cac agc cag gac agg tac gag ttc tca tcc cat atc acg cgg ggg gag 1152  
His Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Thr Arg Gly Glu  
370 375 380

cat cgt tac cac ctg agc 1170  
His Arg Tyr His Leu Ser  
385 390

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<211> 1128  
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<220>  
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agc ccc cca gtc agt gac act cca gat gaa ggg gat gag ccc atg cct 96  
Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
20 25 30

gtc cct gag gac ctg tcc act acc tct gga gca cag cag aac tcc aag 144  
Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
35 40 45

agt gat cga ggc atg gcc agt aat gtt aaa gta gag act cag agt gat 192  
Ser Asp Arg Gly Met Ala Ser Asn Val Lys Val Glu Thr Gln Ser Asp  
50 55 60

gaa gag aat ggg cgt gcc tgt gaa atg aat ggg gaa gaa tgt gca gag 240  
Glu Glu Asn Gly Arg Ala Cys Glu Met Asn Gly Glu Glu Cys Ala Glu  
65 70 75 80

gat tta cga atg ctt gat gcc tcc gga gag aaa atg aat ggc tcc cac 288  
Asp Leu Arg Met Leu Asp Ala Ser Gly Glu Lys Met Asn Gly Ser His  
85 90 95

agg gac caa ggc agc tcg gct ttg tca gga gtt gga ggc att cga ctt 336  
Arg Asp Gln Gly Ser Ser Ala Leu Ser Gly Val Gly Gly Ile Arg Leu  
100 105 110

cct aac gga aaa cta aag tgt gat atc tgt ggg atc gtt tgc atc ggg 384  
Pro Asn Gly Lys Leu Lys Cys Asp Ile Cys Gly Ile Val Cys Ile Gly  
115 120 125

ccc aat gtg ctc atg gtt cac aaa aga agt cat act gga gac aag tgc 432  
Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Asp Lys Cys  
130 135 140

ctg tca gac atg ccc tat gac agt gcc aac tat gag aag gag gat atg 480  
Leu Ser Asp Met Pro Tyr Asp Ser Ala Asn Tyr Glu Lys Glu Asp Met  
145 150 155 160

atg aca tcc cac gtg atg gac cag gcc atc aac aat gcc atc aac tac 528  
Met Thr Ser His Val Met Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr  
165 170 175

ctg ggg gct gag tcc ctg cgc cca ttg gtg cag aca ccc ccc ggt agc 576  
Leu Gly Ala Glu Ser Leu Arg Pro Leu Val Gln Thr Pro Pro Gly Ser  
180 185 190

tcc gag gtg gtg cca gtc atc agc tcc atg tac cag ctg cac aag ccc 624  
Ser Glu Val Val Pro Val Ile Ser Ser Met Tyr Gln Leu His Lys Pro  
195 200 205

ccc tca gat ggc ccc cca cgg tcc aac cat tca gca cag gac gcc gtg 672  
Pro Ser Asp Gly Pro Pro Arg Ser Asn His Ser Ala Gln Asp Ala Val  
210 215 220

gat aac ttg ctg ctg ctg tcc aag gcc aag tct gtg tca tcg gag cga 720  
Asp Asn Leu Leu Leu Ser Lys Ala Lys Ser Val Ser Ser Glu Arg  
225 230 235 240

gag gcc tcc ccg agc aac agc tgc caa gac tcc aca gat aca gag agc 768  
Glu Ala Ser Pro Ser Asn Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser  
245 250 255

aac gcg gag gaa cag cgc agc ggc ctt atc tac cta acc aac cac atc 816  
Asn Ala Glu Glu Gln Arg Ser Gly Leu Ile Tyr Leu Thr Asn His Ile  
260 265 270

aac ccg cat gca cgc aat ggg ctg gct ctc aag gag gag cag cgc gcc 864  
Asn Pro His Ala Arg Asn Gly Leu Ala Leu Lys Glu Glu Gln Arg Ala  
275 280 285

tac gag gtg ctg agg gcg gcc tca gag aac tcg cag gat gcc ttc cgt 912  
Tyr Glu Val Leu Arg Ala Ala Ser Glu Asn Ser Gln Asp Ala Phe Arg  
290 295 300

gtg gtc agc acg agt ggc gag cag ctg aag gtg tac aag tgc gaa cac 960  
Val Val Ser Thr Ser Gly Glu Gln Leu Lys Val Tyr Lys Cys Glu His  
305 310 315 320

tgc cgc gtg ctc ttc ctg gat cac gtc atg tat acc att cac atg ggc 1008  
Cys Arg Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly  
325 330 335

tgc cat ggc tgc cat ggc ttt cgg gat ccc ttt gag tgt aac atg tgt	1056
Cys His Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys Asn Met Cys	
340 345 350	

ggt tat cac agc cag gac agg tac gag ttc tca tcc cat atc acg cgg	1104
Gly Tyr His Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Thr Arg	
355 360 365	

ggg gag cat cgt tac cac ctg agc	1128
Gly Glu His Arg Tyr His Leu Ser	
370 375	

<210> 21  
 <211> 1004  
 <212> DNA  
 <213> Mus musculus

<220>  
 <221> CDS  
 <222> (1)...(1002)

<400> 21	
gga gaa cgg ccc ttc cag tgc aat cag tgc ggg gcc tca ttc acc cag	48
Gly Glu Arg Pro Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln	
1 5 10 15	

aag ggc aac ctg ctc cgg cac atc aag ctg cat tcc ggg gag aag ccc	96
Lys Gly Asn Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro	
20 25 30	

ttc aaa tgc cac ctc tgc aac tac gcc tgc cgc cgg agg gac gcc ctc	144
Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg Arg Arg Asp Ala Leu	
35 40 45	

act ggc cac ctg agg acg cac tcc gtc att aaa gaa gaa act aag cac	192
Thr Gly His Leu Arg Thr His Ser Val Ile Lys Glu Glu Thr Lys His	
50 55 60	

agt gaa atg gca gaa gac ctg tgc aag ata gga tca gag aga tct ctc	240
Ser Glu Met Ala Glu Asp Leu Cys Lys Ile Gly Ser Glu Arg Ser Leu	
65 70 75 80	

gtg ctg gac aga cta gca agt aat gtc gcc aaa cgt aag agc tct atg	288
Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met	
85 90 95	

cct cag aaa ttt ctt ggg gac aag ggc ctg tcc gac acg ccc tac gac	336
Pro Gln Lys Phe Leu Gly Asp Lys Gly Leu Ser Asp Thr Pro Tyr Asp	
100 105 110	

agt gcc acg tac gag aag gag aac gaa atg atg aag tcc cac gtg atg	384
Ser Ala Thr Tyr Glu Lys Glu Asn Glu Met Met Lys Ser His Val Met	
115 120 125	

gac caa gcc atc aac aac gcc atc aac tac ctg ggg gcc gag tcc ctg	432
Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu	
130 135 140	

cgc ccg ctg gtg cag acg ccc ccg ggc ggt tcc gag gtg gtc ccg gtc	480
Arg Pro Leu Val Gln Thr Pro Pro Gly Gly Ser Glu Val Val Pro Val	
145 150 155 160	

atc agc ccg atg tac cag ctg cac agg cgc tcg gag ggc acc ccg cgc 528  
 Ile Ser Pro Met Tyr Gln Leu His Arg Arg Ser Glu Gly Thr Pro Arg  
 165 170 175  
 tcc aac cac tcg gcc cag gac agc gcc gtg gag tac ctg ctg ctg ctc 576  
 Ser Asn His Ser Ala Gln Asp Ser Ala Val Glu Tyr Leu Leu Leu Leu  
 180 185 190  
 tcc aag gcc aag ttg gtg ccc tcg gag cgc gag gcg tcc ccg agc aac 624  
 Ser Lys Ala Lys Leu Val Pro Ser Glu Arg Glu Ala Ser Pro Ser Asn  
 195 200 205  
 agc tgc caa gac tcc acg gac acc gag agc aac aac gag gag cag cgc 672  
 Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Asn Glu Glu Gln Arg  
 210 215 220  
 agc ggt ctt atc tac ctg acc aac cac atc gcc cga cgc gcg caa cgc 720  
 Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Ala Arg Arg Ala Gln Arg  
 225 230 235 240  
 gtg tcg ctc aag gag gag cac cgc gcc tac gac ctg ctg cgc gcc gcc 768  
 Val Ser Leu Lys Glu Glu His Arg Ala Tyr Asp Leu Leu Arg Ala Ala  
 245 250 255  
 tcc gag aac tcg cag gac gcg ctc cgc gtg gtc agc acc agc ggg gag 816  
 Ser Glu Asn Ser Gln Asp Ala Leu Arg Val Val Ser Thr Ser Gly Glu  
 260 265 270  
 cag atg aag gtg tac aag tgc gaa cac tgc cgg gtg ctc ttc ctg gat 864  
 Gln Met Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp  
 275 280 285  
 cac gtc atg tac acc atc cac atg ggc tgc cac ggc ttc cgt gat cct 912  
 His Val Met Tyr Thr Ile His Met Gly Cys His Gly Phe Arg Asp Pro  
 290 295 300  
 ttt gag tgc aac atg tgc ggc tac cac agc cag gac cgg tac gag ttc 960  
 Phe Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr Glu Phe  
 305 310 315 320  
 tcg tcg cac ata acg cga ggg gag cac cgc ttc cac atg agc 1002  
 Ser Ser His Ile Thr Arg Gly Glu His Arg Phe His Met Ser  
 325 330  
 ta 1004

<210> 22  
 <211> 470  
 <212> PRT  
 <213> Mus musculus  
 <220>  
 <221> VARIANT  
 <222> (1)...(470)  
 <223> Xaa = Any Amino Acid

<400> 22  
 Xaa Xaa Ala Ser Asn Val Lys Val Glu Thr Gln Ser Asp Glu Glu Asn  
 1 5 10 15

Gly Arg Ala Cys Glu Met Asn Gly Glu Glu Cys Ala Glu Asp Leu Arg  
 20 25 30  
 Met Leu Asp Ala Ser Gly Glu Lys Met Asn Gly Ser His Arg Asp Gln  
 35 40 45  
 Gly Ser Ser Ala Leu Ser Gly Val Gly Gly Ile Arg Leu Pro Asn Gly  
 50 55 60  
 Lys Leu Lys Cys Asp Ile Cys Gly Ile Xaa Cys Ile Gly Pro Asn Val  
 65 70 75 80  
 Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro Phe Gln Cys  
 85 90 95  
 Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His  
 100 105 110  
 Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn  
 115 120 125  
 Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His  
 130 135 140  
 Ser Val Gly Lys Pro His Lys Cys Gly Tyr Cys Gly Arg Ser Tyr Lys  
 145 150 155 160  
 Gln Arg Xaa Ser Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu  
 165 170 175  
 Glu Ser Met Gly Leu Pro Gly Xaa Xaa Xaa Pro Val Ile Lys Glu Glu  
 180 185 190  
 Thr Xaa His Xaa Glu Met Ala Glu Asp Leu Cys Lys Ile Gly Xaa Glu  
 195 200 205  
 Arg Ser Leu Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys  
 210 215 220  
 Ser Ser Met Pro Gln Lys Phe Leu Gly Asp Lys Xaa Leu Ser Asp Xaa  
 225 230 235 240  
 Pro Tyr Asp Ser Ala Xaa Tyr Glu Lys Glu Xaa Xaa Met Met Xaa Ser  
 245 250 255  
 His Val Met Asp Xaa Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala  
 260 265 270  
 Glu Ser Leu Arg Pro Leu Val Gln Thr Pro Pro Gly Xaa Ser Glu Val  
 275 280 285  
 Val Pro Val Ile Ser Pro Met Tyr Gln Leu His Xaa Xaa Xaa Ser Xaa  
 290 295 300  
 Gly Xaa Pro Arg Ser Asn His Ser Ala Gln Asp Xaa Ala Val Xaa Xaa  
 305 310 315 320  
 Leu Leu Leu Leu Ser Lys Ala Lys Xaa Val Xaa Ser Glu Arg Glu Ala  
 325 330 335  
 Ser Pro Ser Asn Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Xaa  
 340 345 350  
 Glu Glu Gln Arg Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Xaa Xaa  
 355 360 365  
 Xaa Ala Xaa Xaa Xaa Xaa Xaa Leu Lys Glu Glu Xaa Arg Ala Tyr Xaa  
 370 375 380  
 Xaa Leu Arg Ala Ala Ser Glu Asn Ser Gln Asp Ala Xaa Arg Val Val  
 385 390 395 400  
 Ser Thr Ser Gly Glu Gln Xaa Lys Val Tyr Lys Cys Glu His Cys Arg  
 405 410 415  
 Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Xaa Xaa Xaa  
 420 425 430  
 Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr  
 435 440 445  
 His Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Thr Arg Gly Glu  
 450 455 460  
 His Arg Xaa His Xaa Ser  
 465 470

<210> 23  
 <211> 334

<212> PRT

<213> Mus musculus

<400> 23

Gly Glu Arg Pro Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln  
1 5 10 15  
Lys Gly Asn Leu Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro  
20 25 30  
Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg Arg Asp Ala Leu  
35 40 45  
Thr Gly His Leu Arg Thr His Ser Val Ile Lys Glu Glu Thr Lys His  
50 55 60  
Ser Glu Met Ala Glu Asp Leu Cys Lys Ile Gly Ser Glu Arg Ser Leu  
65 70 75 80  
Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met  
85 90 95  
Pro Gln Lys Phe Leu Gly Asp Lys Gly Leu Ser Asp Thr Pro Tyr Asp  
100 105 110  
Ser Ala Thr Tyr Glu Lys Glu Asn Glu Met Met Lys Ser His Val Met  
115 120 125  
Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu  
130 135 140  
Arg Pro Leu Val Gln Thr Pro Pro Gly Gly Ser Glu Val Val Pro Val  
145 150 155 160  
Ile Ser Pro Met Tyr Gln Leu His Arg Arg Ser Glu Gly Thr Pro Arg  
165 170 175  
Ser Asn His Ser Ala Gln Asp Ser Ala Val Glu Tyr Leu Leu Leu Leu  
180 185 190  
Ser Lys Ala Lys Leu Val Pro Ser Glu Arg Glu Ala Ser Pro Ser Asn  
195 200 205  
Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Asn Glu Glu Gln Arg  
210 215 220  
Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Ala Arg Arg Ala Gln Arg  
225 230 235 240  
Val Ser Leu Lys Glu His Arg Ala Tyr Asp Leu Leu Arg Ala Ala  
245 250 255  
Ser Glu Asn Ser Gln Asp Ala Leu Arg Val Val Ser Thr Ser Gly Glu  
260 265 270  
Gln Met Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp  
275 280 285  
His Val Met Tyr Thr Ile His Met Gly Cys His Gly Phe Arg Asp Pro  
290 295 300  
Phe Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr Glu Phe  
305 310 315 320  
Ser Ser His Ile Thr Arg Gly Glu His Arg Phe His Met Ser  
325 330

<210> 24

<211> 431

<212> PRT

<213> Mus musculus

<400> 24

Met Asp Val Asp Glu Gly Gln Asp Met Ser Gln Val Ser Gly Lys Glu  
1 5 10 15  
Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
20 25 30  
Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
35 40 45  
Ser Asp Arg Gly Met Gly Glu Arg Pro Phe Gln Cys Asn Gln Ser Gly  
50 55 60

Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His  
65 70 75 80  
Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg  
85 90 95  
Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys  
100 105 110  
Pro His Lys Cys Gly Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Ser Ser  
115 120 125  
Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Glu Ser Met Gly  
130 135 140  
Leu Pro Gly Val Cys Pro Val Ile Lys Glu Glu Thr Asn His Asn Glu  
145 150 155 160  
Met Ala Glu Asp Leu Cys Lys Ile Gly Ala Glu Arg Ser Leu Val Leu  
165 170 175  
Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met Pro Gln  
180 185 190  
Lys Phe Leu Gly Asp Lys Cys Leu Ser Asp Met Pro Tyr Asp Ser Ala  
195 200 205  
Asn Tyr Glu Lys Glu Asp Met Met Thr Ser His Val Met Asp Gln Ala  
210 215 220  
Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu Arg Pro Leu  
225 230 235 240  
Val Gln Thr Pro Pro Gly Ser Ser Glu Val Val Pro Val Ile Ser Ser  
245 250 255  
Met Tyr Gln Leu His Lys Pro Pro Ser Asp Gly Pro Pro Arg Ser Asn  
260 265 270  
His Ser Ala Gln Asp Ala Val Asp Asn Leu Leu Leu Leu Ser Lys Ala  
275 280 285  
Lys Ser Val Ser Ser Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys Gln  
290 295 300  
Asp Ser Thr Asp Thr Glu Ser Asn Ala Glu Glu Gln Arg Ser Gly Leu  
305 310 315 320  
Ile Tyr Leu Thr Asn His Ile Asn Pro His Ala Arg Asn Gly Leu Ala  
325 330 335  
Leu Lys Glu Glu Gln Arg Ala Tyr Glu Val Leu Arg Ala Ala Ser Glu  
340 345 350  
Asn Ser Gln Asp Ala Phe Arg Val Val Ser Thr Ser Gly Glu Gln Leu  
355 360 365  
Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His Val  
370 375 380  
Met Tyr Thr Ile His Met Gly Cys His Gly Cys His Gly Phe Arg Asp  
385 390 395 400  
Pro Phe Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr Glu  
405 410 415  
Phe Ser Ser His Ile Thr Arg Gly Glu His Arg Tyr His Leu Ser  
420 425 430

<210> 25  
<211> 461  
<212> PRT  
<213> Mus musculus

<400> 25  
Asn Val Lys Val Glu Thr Gln Ser Asp Glu Glu Asn Gly Arg Ala Cys  
1 5 10 15  
Glu Met Asn Gly Glu Glu Cys Ala Glu Asp Leu Arg Met Leu Asp Ala  
20 25 30  
Ser Gly Glu Lys Met Asn Gly Ser His Arg Asp Gln Gly Ser Ser Ala  
35 40 45  
Leu Ser Gly Val Gly Gly Ile Arg Leu Pro Asn Gly Lys Leu Lys Cys  
50 55 60



Asp Ile Cys Gly Ile Ile Cys Ile Gly Pro Asn Val Leu Met Val His  
 65 70 75 80  
 Lys Arg Ser His Thr Gly Glu Arg Pro Phe Gln Cys Asn Gln Cys Gly  
 85 90 95  
 Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His  
 100 105 110  
 Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg  
 115 120 125  
 Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Gly Lys  
 130 135 140  
 Pro His Lys Cys Gly Tyr Cys Gly Arg Ser Tyr Lys Gln Arg Thr Ser  
 145 150 155 160  
 Leu Glu Glu His Lys Glu Arg Cys His Asn Tyr Leu Glu Ser Met Gly  
 165 170 175  
 Leu Pro Gly Thr Leu Tyr Pro Val Ile Lys Glu Glu Thr Lys His Ser  
 180 185 190  
 Glu Met Ala Glu Asp Leu Cys Lys Ile Gly Ser Glu Arg Ser Leu Val  
 195 200 205  
 Leu Asp Arg Leu Ala Ser Asn Val Ala Lys Arg Lys Ser Ser Met Pro  
 210 215 220  
 Gln Lys Phe Leu Gly Asp Lys Gly Leu Ser Asp Thr Pro Tyr Asp Ser  
 225 230 235 240  
 Ala Thr Tyr Glu Lys Glu Asn Glu Met Met Lys Ser His Val Met Asp  
 245 250 255  
 Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu Arg  
 260 265 270  
 Pro Leu Val Gln Thr Pro Pro Gly Gly Ser Glu Val Val Pro Val Ile  
 275 280 285  
 Ser Pro Met Tyr Gln Leu His Arg Arg Ser Glu Gly Thr Pro Arg Ser  
 290 295 300  
 Asn His Ser Ala Gln Asp Ser Ala Val Glu Tyr Leu Leu Leu Leu Ser  
 305 310 315 320  
 Lys Ala Lys Leu Val Pro Ser Glu Arg Glu Ala Ser Pro Ser Asn Ser  
 325 330 335  
 Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Asn Glu Glu Gln Arg Ser  
 340 345 350  
 Gly Leu Ile Tyr Leu Thr Asn His Ile Ala Arg Arg Ala Gln Arg Val  
 355 360 365  
 Ser Leu Lys Glu Glu His Arg Ala Tyr Asp Leu Leu Arg Ala Ala Ser  
 370 375 380  
 Glu Asn Ser Gln Asp Ala Leu Arg Val Val Ser Thr Ser Gly Glu Gln  
 385 390 395 400  
 Met Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His  
 405 410 415  
 Val Met Tyr Thr Ile His Met Gly Cys His Gly Phe Arg Asp Pro Phe  
 420 425 430  
 Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr Glu Phe Ser  
 435 440 445  
 Ser His Ile Thr Arg Gly Glu His Arg Phe His Met Ser  
 450 455 460

<210> 26  
 <211> 432  
 <212> PRT  
 <213> Mus musculus

<400> 26  
 Met Asp Val Asp Glu Gly Gln Asp Met Ser Gln Val Ser Gly Lys Glu  
 1 5 10 15  
 Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
 20 25 30

Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
 35 40 45  
 Ser Asp Arg Gly Met Ala Ser Asn Val Lys Val Glu Thr Gln Ser Asp  
 50 55 60  
 Glu Glu Asn Gly Arg Ala Cys Glu Met Asn Gly Glu Glu Cys Ala Glu  
 65 70 75 80  
 Asp Leu Arg Met Leu Asp Ala Ser Gly Glu Lys Met Asn Gly Ser His  
 85 90 95  
 Arg Asp Gln Gly Ser Ser Ala Leu Ser Gly Val Gly Gly Ile Arg Leu  
 100 105 110  
 Pro Asn Gly Lys Leu Lys Cys Asp Ile Cys Gly Ile Val Cys Ile Gly  
 115 120 125  
 Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro  
 130 135 140  
 Phe Gln Cys Asn Gln Ser Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
 145 150 155 160  
 Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys His  
 165 170 175  
 Leu Cys Asn Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu  
 180 185 190  
 Arg Thr His Ser Gly Asp Lys Cys Leu Ser Asp Met Pro Tyr Asp Ser  
 195 200 205  
 Ala Asn Tyr Glu Lys Glu Asp Met Met Thr Ser His Val Met Asp Gln  
 210 215 220  
 Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly Ala Glu Ser Leu Arg Pro  
 225 230 235 240  
 Leu Val Gln Thr Pro Pro Gly Ser Ser Glu Val Val Pro Val Ile Ser  
 245 250 255  
 Ser Met Tyr Gln Leu His Lys Pro Pro Ser Asp Gly Pro Pro Arg Ser  
 260 265 270  
 Asn His Ser Ala Gln Asp Ala Val Asp Asn Leu Leu Leu Leu Ser Lys  
 275 280 285  
 Ala Lys Ser Val Ser Ser Glu Arg Glu Ala Ser Pro Ser Asn Ser Cys  
 290 295 300  
 Gln Asp Ser Thr Asp Thr Glu Ser Asn Ala Glu Glu Gln Arg Ser Gly  
 305 310 315 320  
 Leu Ile Tyr Leu Thr Asn His Ile Asn Pro His Ala Arg Asn Gly Leu  
 325 330 335  
 Ala Leu Lys Glu Glu Gln Arg Ala Tyr Glu Val Leu Arg Ala Ala Ser  
 340 345 350  
 Glu Asn Ser Gln Asp Ala Phe Arg Val Val Ser Thr Ser Gly Glu Gln  
 355 360 365  
 Leu Lys Val Tyr Lys Cys Glu His Cys Arg Val Leu Phe Leu Asp His  
 370 375 380  
 Val Met Tyr Thr Ile His Met Gly Cys His Gly Cys His Gly Phe Arg  
 385 390 395 400  
 Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr His Ser Gln Asp Arg Tyr  
 405 410 415  
 Glu Phe Ser Ser His Ile Thr Arg Gly Glu His Arg Tyr His Leu Ser  
 420 425 430

<210> 27  
 <211> 518  
 <212> PRT  
 <213> Mus musculus

<400> 27  
 Met Asp Val Asp Glu Gly Gln Asp Met Ser Gln Val Ser Gly Lys Glu  
 1 5 10 15  
 Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
 20 25 30

Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
 35 40 45  
 Ser Asp Arg Gly Met Ala Ser Asn Val Lys Val Glu Thr Gln Ser Asp  
 50 55 60  
 Glu Glu Asn Gly Arg Ala Cys Glu Met Asn Gly Glu Glu Cys Ala Glu  
 65 70 75 80  
 Asp Leu Arg Met Leu Asp Ala Ser Gly Glu Lys Met Asn Gly Ser His  
 85 90 95  
 Arg Asp Gln Gly Ser Ser Ala Leu Ser Gly Val Gly Gly Ile Arg Leu  
 100 105 110  
 Pro Asn Gly Lys Leu Lys Cys Asp Ile Cys Gly Ile Val Cys Ile Gly  
 115 120 125  
 Pro Asn Val Leu Met Val His Lys Arg Ser His Thr Gly Glu Arg Pro  
 130 135 140  
 Phe Gln Cys Asn Gln Ser Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
 145 150 155 160  
 Leu Arg His Ile Lys Leu His Ser Gly Glu Lys Pro Phe Lys Cys His  
 165 170 175  
 Leu Cys Asn Tyr Ala Cys Arg Arg Arg Asp Ala Leu Thr Gly His Leu  
 180 185 190  
 Arg Thr His Ser Val Gly Lys Pro His Lys Cys Gly Tyr Cys Gly Arg  
 195 200 205  
 Ser Tyr Lys Gln Arg Ser Ser Leu Glu Glu His Lys Glu Arg Cys His  
 210 215 220  
 Asn Tyr Leu Glu Ser Met Gly Leu Pro Gly Val Cys Pro Val Ile Lys  
 225 230 235 240  
 Glu Glu Thr Asn His Asn Glu Met Ala Glu Asp Leu Cys Lys Ile Gly  
 245 250 255  
 Ala Glu Arg Ser Leu Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys  
 260 265 270  
 Arg Lys Ser Ser Met Pro Gln Lys Phe Leu Gly Asp Lys Cys Leu Ser  
 275 280 285  
 Asp Met Pro Tyr Asp Ser Ala Asn Tyr Glu Lys Glu Asp Met Met Thr  
 290 295 300  
 Ser His Val Met Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly  
 305 310 315 320  
 Ala Glu Ser Leu Arg Pro Leu Val Gln Thr Pro Pro Gly Ser Ser Glu  
 325 330 335  
 Val Val Pro Val Ile Ser Ser Met Tyr Gln Leu His Lys Pro Pro Ser  
 340 345 350  
 Asp Gly Pro Pro Arg Ser Asn His Ser Ala Gln Asp Ala Val Asp Asn  
 355 360 365  
 Leu Leu Leu Leu Ser Lys Ala Lys Ser Val Ser Ser Glu Arg Glu Ala  
 370 375 380  
 Ser Pro Ser Asn Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Ala  
 385 390 395 400  
 Glu Glu Gln Arg Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Asn Pro  
 405 410 415  
 His Ala Arg Asn Gly Leu Ala Leu Lys Glu Glu Gln Arg Ala Tyr Glu  
 420 425 430  
 Val Leu Arg Ala Ala Ser Glu Asn Ser Gln Asp Ala Phe Arg Val Val  
 435 440 445  
 Ser Thr Ser Gly Glu Gln Leu Lys Val Tyr Lys Cys Glu His Cys Arg  
 450 455 460  
 Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His  
 465 470 475 480  
 Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr  
 485 490 495  
 His Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Thr Arg Gly Glu  
 500 505 510

His Arg Tyr His Leu Ser  
515

<210> 28  
<211> 390  
<212> PRT  
<213> Mus musculus

<400> 28  
Met Asp Val Asp Glu Gly Gln Asp Met Ser Gln Val Ser Gly Lys Glu  
1 5 10 15  
Ser Pro Pro Val Ser Asp Thr Pro Asp Glu Gly Asp Glu Pro Met Pro  
20 25 30  
Val Pro Glu Asp Leu Ser Thr Thr Ser Gly Ala Gln Gln Asn Ser Lys  
35 40 45  
Ser Asp Arg Gly Met Gly Glu Arg Pro Phe Gln Cys Asn Gln Ser Gly  
50 55 60  
Ala Ser Phe Thr Gln Lys Gly Asn Leu Leu Arg His Ile Lys Leu His  
65 70 75 80  
Ser Gly Glu Lys Pro Phe Lys Cys His Leu Cys Asn Tyr Ala Cys Arg  
85 90 95  
Arg Arg Asp Ala Leu Thr Gly His Leu Arg Thr His Ser Val Ile Lys  
100 105 110  
Glu Glu Thr Asn His Asn Glu Met Ala Glu Asp Leu Cys Lys Ile Gly  
115 120 125  
Ala Glu Arg Ser Leu Val Leu Asp Arg Leu Ala Ser Asn Val Ala Lys  
130 135 140  
Arg Lys Ser Ser Met Pro Gln Lys Phe Leu Gly Asp Lys Cys Leu Ser  
145 150 155 160  
Asp Met Pro Tyr Asp Ser Ala Asn Tyr Glu Lys Glu Asp Met Met Thr  
165 170 175  
Ser His Val Met Asp Gln Ala Ile Asn Asn Ala Ile Asn Tyr Leu Gly  
180 185 190  
Ala Glu Ser Leu Arg Pro Leu Val Gln Thr Pro Pro Gly Ser Ser Glu  
195 200 205  
Val Val Pro Val Ile Ser Ser Met Tyr Gln Leu His Lys Pro Pro Ser  
210 215 220  
Asp Gly Pro Pro Arg Ser Asn His Ser Ala Gln Asp Ala Val Asp Asn  
225 230 235 240  
Leu Leu Leu Leu Ser Lys Ala Lys Ser Val Ser Ser Glu Arg Glu Ala  
245 250 255  
Ser Pro Ser Asn Ser Cys Gln Asp Ser Thr Asp Thr Glu Ser Asn Ala  
260 265 270  
Glu Glu Gln Arg Ser Gly Leu Ile Tyr Leu Thr Asn His Ile Asn Pro  
275 280 285  
His Ala Arg Asn Gly Leu Ala Leu Lys Glu Glu Gln Arg Ala Tyr Glu  
290 295 300  
Val Leu Arg Ala Ala Ser Glu Asn Ser Gln Asp Ala Phe Arg Val Val  
305 310 315 320  
Ser Thr Ser Gly Glu Gln Leu Lys Val Tyr Lys Cys Glu His Cys Arg  
325 330 335  
Val Leu Phe Leu Asp His Val Met Tyr Thr Ile His Met Gly Cys His  
340 345 350  
Gly Cys His Gly Phe Arg Asp Pro Phe Glu Cys Asn Met Cys Gly Tyr  
355 360 365  
His Ser Gln Asp Arg Tyr Glu Phe Ser Ser His Ile Thr Arg Gly Glu  
370 375 380

His Arg Tyr His Leu Ser  
385 390

<210> 29  
 <211> 376  
 <212> PRT  
 <213> Mus musculus

<400> 29

Met	Asp	Val	Asp	Glu	Gly	Gln	Asp	Met	Ser	Gln	Val	Ser	Gly	Lys	Glu
1				5				10						15	
Ser	Pro	Pro	Val	Ser	Asp	Thr	Pro	Asp	Glu	Gly	Asp	Glu	Pro	Met	Pro
			20					25					30		
Val	Pro	Glu	Asp	Leu	Ser	Thr	Thr	Ser	Gly	Ala	Gln	Gln	Asn	Ser	Lys
		35					40					45			
Ser	Asp	Arg	Gly	Met	Ala	Ser	Asn	Val	Lys	Val	Glu	Thr	Gln	Ser	Asp
	50					55				60					
Glu	Glu	Asn	Gly	Arg	Ala	Cys	Glu	Met	Asn	Gly	Glu	Glu	Cys	Ala	Glu
	65				70					75					80
Asp	Leu	Arg	Met	Leu	Asp	Ala	Ser	Gly	Glu	Lys	Met	Asn	Gly	Ser	His
			85					90						95	
Arg	Asp	Gln	Gly	Ser	Ser	Ala	Leu	Ser	Gly	Val	Gly	Gly	Ile	Arg	Leu
		100						105					110		
Pro	Asn	Gly	Lys	Leu	Lys	Cys	Asp	Ile	Cys	Gly	Ile	Val	Cys	Ile	Gly
	115						120					125			
Pro	Asn	Val	Leu	Met	Val	His	Lys	Arg	Ser	His	Thr	Gly	Asp	Lys	Cys
	130					135					140				
Leu	Ser	Asp	Met	Pro	Tyr	Asp	Ser	Ala	Asn	Tyr	Glu	Lys	Glu	Asp	Met
	145				150					155					160
Met	Thr	Ser	His	Val	Met	Asp	Gln	Ala	Ile	Asn	Asn	Ala	Ile	Asn	Tyr
			165					170						175	
Leu	Gly	Ala	Glu	Ser	Leu	Arg	Pro	Leu	Val	Gln	Thr	Pro	Pro	Gly	Ser
		180						185					190		
Ser	Glu	Val	Val	Pro	Val	Ile	Ser	Ser	Met	Tyr	Gln	Leu	His	Lys	Pro
	195						200					205			
Pro	Ser	Asp	Gly	Pro	Pro	Arg	Ser	Asn	His	Ser	Ala	Gln	Asp	Ala	Val
	210					215					220				
Asp	Asn	Leu	Leu	Leu	Leu	Ser	Lys	Ala	Lys	Ser	Val	Ser	Ser	Glu	Arg
	225				230					235					240
Glu	Ala	Ser	Pro	Ser	Asn	Ser	Cys	Gln	Asp	Ser	Thr	Asp	Thr	Glu	Ser
		245						250						255	
Asn	Ala	Glu	Glu	Gln	Arg	Ser	Gly	Leu	Ile	Tyr	Leu	Thr	Asn	His	Ile
		260						265					270		
Asn	Pro	His	Ala	Arg	Asn	Gly	Leu	Ala	Leu	Lys	Glu	Glu	Gln	Arg	Ala
	275					280						285			
Tyr	Glu	Val	Leu	Arg	Ala	Ala	Ser	Glu	Asn	Ser	Gln	Asp	Ala	Phe	Arg
	290				295						300				
Val	Val	Ser	Thr	Ser	Gly	Glu	Gln	Leu	Lys	Val	Tyr	Lys	Cys	Glu	His
	305				310					315					320
Cys	Arg	Val	Leu	Phe	Leu	Asp	His	Val	Met	Tyr	Thr	Ile	His	Met	Gly
			325					330						335	
Cys	His	Gly	Cys	His	Gly	Phe	Arg	Asp	Pro	Phe	Glu	Cys	Asn	Met	Cys
		340						345					350		
Gly	Tyr	His	Ser	Gln	Asp	Arg	Tyr	Glu	Phe	Ser	Ser	His	Ile	Thr	Arg
	355						360						365		
Gly	Glu	His	Arg	Tyr	His	Leu	Ser								
	370					375									